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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION FOR UNITED STATES LETTERS PATENT

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TITLE: STAIR TREAD WITH INTEGRAL NON-
SLIP LAYER

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STAIR TREAD WITH INTEGRAL NON-SLIP LAYER

[0001] This application claims the benefit of U.S. Provisional Application No. 60/455,081, filed March 14, 2003.

FIELD OF THE INVENTION

[0002] This invention relates to stair treads, stair coverings and the like. In particular, the present invention is directed to non-slip stair treads including an integral rug and non-slip material.

BACKGROUND OF THE INVENTION

[0003] A primary consideration in the design of a stairway is that of safety. In both domestic and commercial settings, ensuring that stairways are safe has been central to the development of numerous features and design specifications related to stair configurations, stair surfaces and coverings, and associated elements.

[0004] For example, construction code has been developed to address the standardization of stair sizes. The standardization of stair sizes provides a predictable step size and thus, reduces missteps and accidents. Railings are common adjuncts to assist in safe ascending and descending of stairs. In industrial settings, especially where various slippery materials may be spilled or the like, stairs may have non-slip surfaces or materials applied thereto or formed of non-slip treads, such as toothed metal gratings or members.

[0005] In a domestic setting, industrial solutions to increase stair safety are not often practical or desirable due to cost and aesthetic reasons. In a home it is common to apply a runner made of carpeting or rug material to a stairway. However, runners must be fastened at a number of points along the run of stairs. This is intended to prevent the runner from moving, creeping, bunching and the like. The rug or carpet reduces the possibility of slippage. However, due to the necessity of fastening the rug or carpet to the stairs, the rug or carpet must be continuous and cover most or the entire stairway in order to be positively fastened thereto. This requires skilled installation, is expensive and can permanently mar the stairway material.

[0006] Alternately, individual stair treads, comprised of narrow rugs and a fastening means have been used. As in the above runner example, each stair tread has been fastened to a respective stair by way of tacks or glue, which inherently has similar problems as above. Another means of retaining each stair tread rug has been the provision of an underlying, but separate sheet of non-slip material to each rug. This technique has the disadvantage of separation of layers during use, which has the possibility of causing a reduction of stair safety.

[0007] Thus, there is a demand for a stair tread safety device which is inexpensive, easily installed and aesthetically pleasing. The present invention satisfies the demand.

SUMMARY OF THE INVENTION

[0008] Now, with the foregoing in mind, the current invention builds upon the original function of a runner for a stairway, but this time, and in the case of the preferred embodiment, an integral stair tread and non-slip device which may be easily positioned by a homeowner is presented. The present invention is non-marring, aesthetically pleasing and can be less expensive than permanent carpeting or a runner.

[0009] The present invention, in perhaps one of its broadest expressions, comprises a non-slip rug sized to cover a substantial portion of a stair. The non-slip rug includes an upper rug layer. The non-slip rug includes an integral non-slip base layer positioned on a bottom side of the upper rug layer. When the non-slip rug is positioned on a stair, the base directly contacts the stair and prevents movement of the non-slip rug.

[0010] The upper rug layer may be a tubular braided rug. It will be understood that the upper rug layer may be any suitable type of rug which is capable of being attached to a non-slip base layer.

[0011] The non-slip base layer may be a non-slip elastomeric or rubber mat. It will be understood that the non-slip base layer may be any suitable non-slip layer which is capable of being attached to an upper rug layer. The base layer may be made of any suitable rubber, elastomeric, natural or synthetic material so long as it provides an enhanced grip to a stair. One example of a base layer material is polypropylene. The base layer may be a uniform

layer of material or a coated fabric, such as a rubber coated lattice or grid. The rubber mat may be smooth or non-smooth. The rubber mat may have a "waffle" configuration to provide both cushioning or enhances grip.

[0012] The upper rug layer and lower non-slip base layer may be attached by any suitable means. Preferably, a binding is formed on the outer periphery of the rug. The binding may be formed of the same material as the rug or a different material. The binding preferably extends to the underside of the rug and functions to attach the upper rug layer to the non-slip base layer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The present invention will be further appreciated, and its attributes and advantages further understood, upon consideration of the following detailed description of an embodiment of the invention, taken in conjunction with the accompanying drawings, in which:

Figure 1 shows a top view of an embodiment of a stair tread according to the present invention;

Figure 2 shows a bottom view of an embodiment of a stair tread according to the present invention;

Figure 3 shows the embodiment of Figures 1 and 2 in use on a stair step of a stairway;

Figure 4 shows the embodiment of Figures 1 and 2 wherein a corner of the stair tread is turned over to expose both the upper and lower layers of the present invention; and

Figure 5 shows a close up view of the lower layer embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0014] The embodiment of the invention described hereinafter has been particularly adapted for use on a conventional domestic stairway. It will be understood that the invention may be applied to stairways in other settings. The stairway to which the invention is application may be made from wood or other materials wherein it is desired to reduce the risk of slipping.

[0015] For purposes of the present invention, it will be understood that the present invention is intended to be used on stair steps and will cover a substantial portion of the stair step. In other words, the stair tread will cover at least the portion of the stair step that is ordinarily contacted by the feet or shoes of persons using the stairs. Typically, this will include at least a center portion of the stair step and optionally, some of the outermost edge of the stair step ordinarily contacted by the user. Of course, pets using the stair steps may utilize other parts of the stairway and the invention may be sized and shaped to cover some or all of the upper surfaces of the stair steps of the stairway to provide the benefit thereto. For aesthetic reasons or other reasons, the stair tread of the present invention may take a number of shapes and may cover all or some of the stair step.

[0016] Referring to the drawings what is illustrated in Figure 1-5 is an embodiment of a stair tread device, generally referred to at 10, according to the present invention. The illustrated device 10 includes an upper layer 12 and a lower or base layer 14 (see Figure 2). In one embodiment of the invention, the upper layer 12 is a braided rug. The upper layer 12 may be carpet or any similar suitable floor covering. The braided rug of the upper layer 12 may be made of any suitable natural material such as cotton and wool or any suitable synthetic material, such as polyester and the like. The upper layer 12 may also be any suitable blends or combinations thereof. In alternate embodiments, the upper layer may be plastic, a sheet of plastic or other materials such as linoleum and other floor coverings or flooring materials.

[0017] The lower layer 14 may be a mat or the like formed of any suitable non-skid natural material such as latex or rubber or any suitable non-skid synthetic material or blends or combinations thereof. The non-skid synthetic material may be a synthetic plastic, thermoplastic, or elastomeric material such as, for example, polyvinyl chloride (PVC). In one process, well known by those with ordinary skill in the art, the lower layer of material is formed into a mat by contact with a calendar roller or between calendar rollers. The layer 14 may also be formed by other suitable processes, such as, for example, extruding, co-extruding, molding, dipping, and spraying. An important feature of the present invention is the non-skid property of the lower layer 14. This non-skid property enables the stair tread

device 10 to remain in place on a stair step 20 (see Figure 3) even when stepped upon by a person or other stair user.

[0018] In a preferred embodiment, the upper and lower layers 12, 14 are attached by way of a binding 16. The binding 16 is applied to the outer perimeter of the upper layer 12 and interconnects the outer perimeter 18 of the lower layer 14 (see Figures 2, 4 and 5). The binding 16 is a sewn binding applied by known binding/sewing machines and wherein binding thread 17, material or the like connects an outer edge of the upper layer 12 to an outer edge 18 of the lower layer 14, and in some embodiments, in a decorative pattern as shown. Other techniques are contemplated to fasten the upper and lower layers 12, 14. One such technique is the application of an adhesive material (not shown) between the upper and lower layers 12, 14. Another technique is similar to a quilting technique wherein the two layers are fastened or sewn together at points or lines or in a spiral fashion, for example, at some mid-area (not shown) of the layers 12, 14. Therefore, it can be seen that the two layers 12, 14 can be joined together by thread, fabric, adhesive, and any other suitable fastening method or materials.

[0019] In the event that the lower layer 14 is applied to the underside of the upper layer 12 by a process not employing attachment by binding, the binding 16 may be eliminated or preserved for aesthetic purposes. For example, if the lower layer 14 is a series of sprayed ribs (not shown) a binding 16 is not needed for holding the lower layer 14 onto the lower surface of the upper layer 12. If, for example, the upper layer 12 is a braided rug a binding is not needed to bind the outer edges of the upper layer 12.

[0020] The upper layer 12 may take a number of overall shapes. A preferred shape of the upper layer 12 is generally oval (see Figures 1-3). This permits the stair tread 10 to be applied to a number of different sized and shaped stair steps 20. Of course, it will be understood that the stair tread 10 may be other shapes, for example, round, square, footprint, rectangular, trapezoidal and any other shape to enable the stair tread 10 to conform to the area of the stair step which is desired to be covered or will be contacted by users of the stairs (typically, a center portion of the step).

[0020] The stair tread 10 may cover the entire stair step 20 to which it is applied or a portion of the stair step. For example, the stair tread 10 may cover an area corresponding to a majority of, or about half or more of the total step area. The stair tread 10 may be provided in a narrow strip form (not shown) and may be provided in multiples for each stair step in parallel or other suitable arrangements. In other words, the stair tread 10, in one embodiment, can be sized and shaped to be provided in two or more numbers for each stair step 20 in the form of strips, circles, footprints or any other shape.

[0021] The lower layer 14 may be any suitable configuration or texture for providing a non-slip undersurface to the upper layer 12. One embodiment of the lower layer 14 is a smooth sheet of non-slip material (not shown). The lower layer may be textured, e.g., waffle as depicted in Figures 2, 4 and 5, or ribbed, stippled, dotted, rough, woven, interlaced, pointillist, dotted, wavy, and so on. It will be understood that the above is not an exhaustive list of lower layer textures and/or patterns contemplated by the invention. The object of any texture and/or pattern made of the non-slip material forming the lower layer 14 is to provide an efficacious non-slip feature to the lower surface of the upper layer 12. Any pattern or form of material which accomplishes this object is contemplated by the present invention.

[0022] While the present invention has been described with respect to a particular embodiment, those of skill in this art will recognize even more variations, applications and modifications which will still fall within the spirit and scope of the invention, all as intended to come within the ambit and reach of the following claims.